Apriori Algorithm for Recommender Systems

Coordinator: Roxana Mafteiu-Scai

Team:Team 1

Team Members: Adrian Tuns, Iulia Hurloi, Paul Pop, Vittoria Piatti

Theme

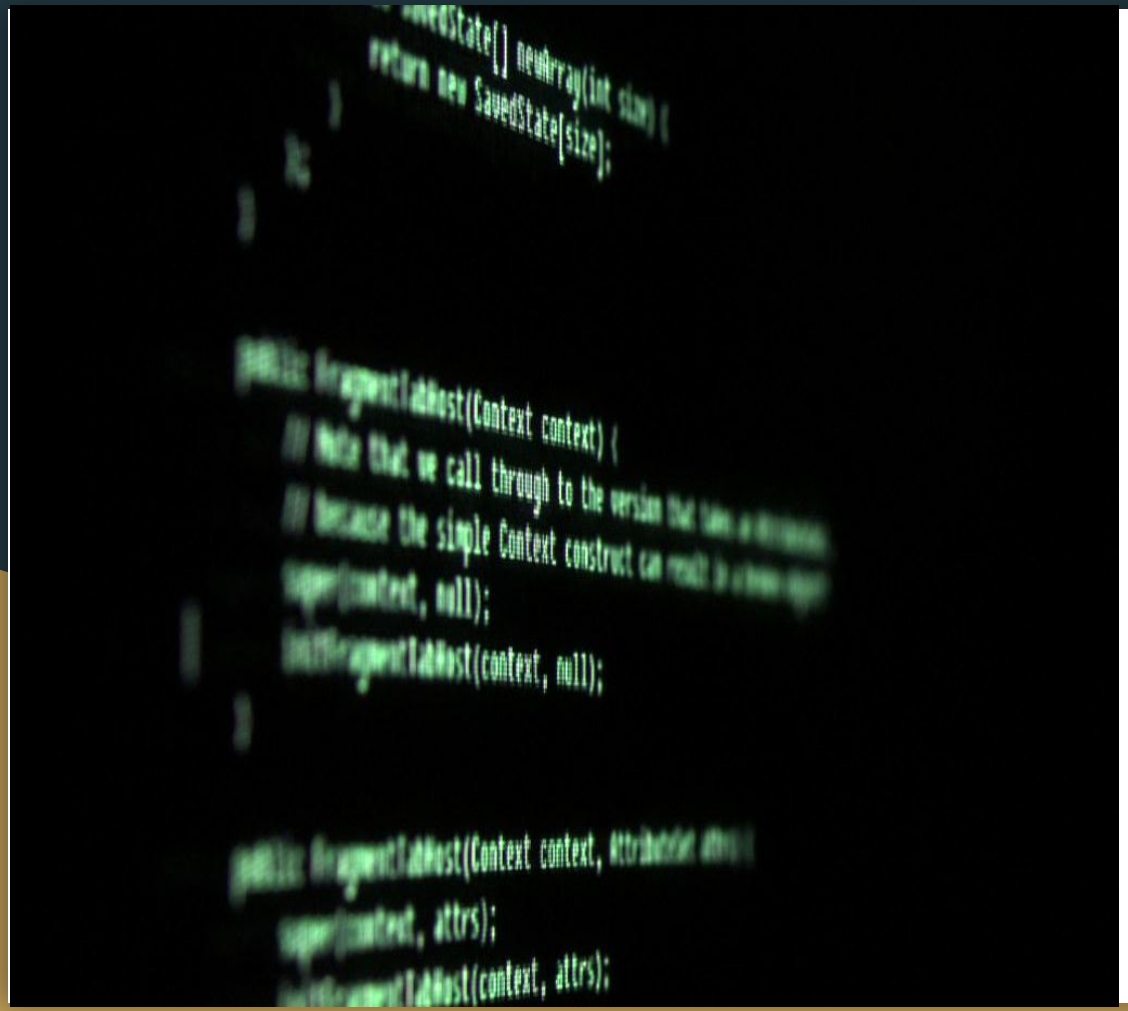
Implementing the Apriori algorithm from scratch and apply it in a movie recommender system.

Data set

- ★ 8896 lines
- ★ List of users favorite movies
- ★ Text file

```
Dogs;Searching;Roma;Us;Deadpool 2;Bird Box;Aquaman
Won't You Be My Neighbor?;Isle of Dogs;Roma;Bohemian Rhapsody
Avengers: Infinity War - Part I;Deadpool 2
Avengers: Infinity War - Part I;Isle of Dogs
Green Book;Once Upon a Time in Hollywood;Joker
Deadpool 2;Green Book;Bohemian Rhapsody;Isle of Dogs;Searching;Aquaman;Spider-Man: Into the Spider-Verse;A Star Is Born
Ocean's 8;Incredibles 2;Avengers: Infinity War - Part I;Avengers: Infinity War - Part II;Spider-Man: Into the Spider-Verse
The Cloverfield Paradox;Tomb Raider;Pacific Rim: Uprising;Red Sparrow
```

Implementation



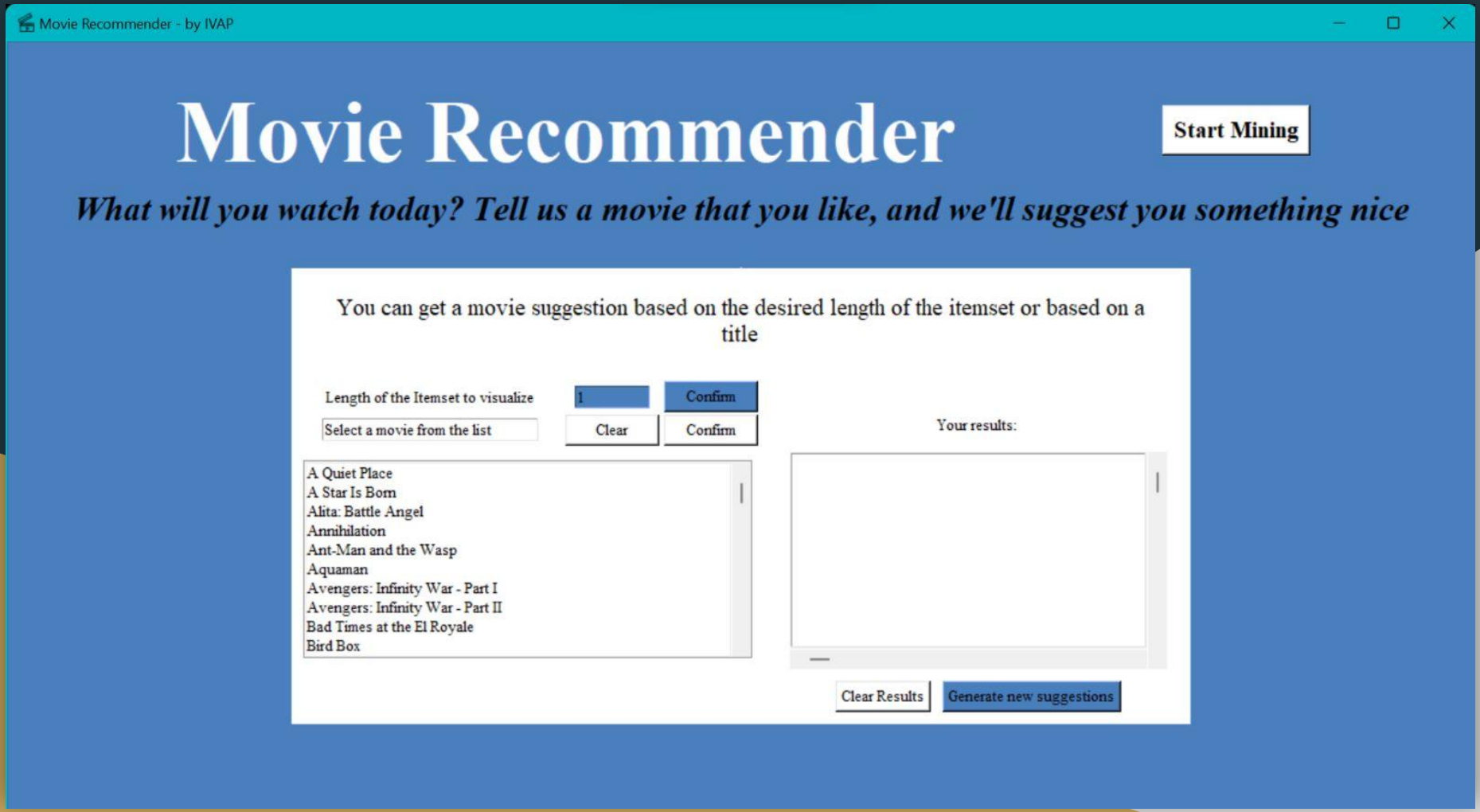
Main Functions

Start data mining

Get length itemsets

Movie recommendation

Graphic User Interface

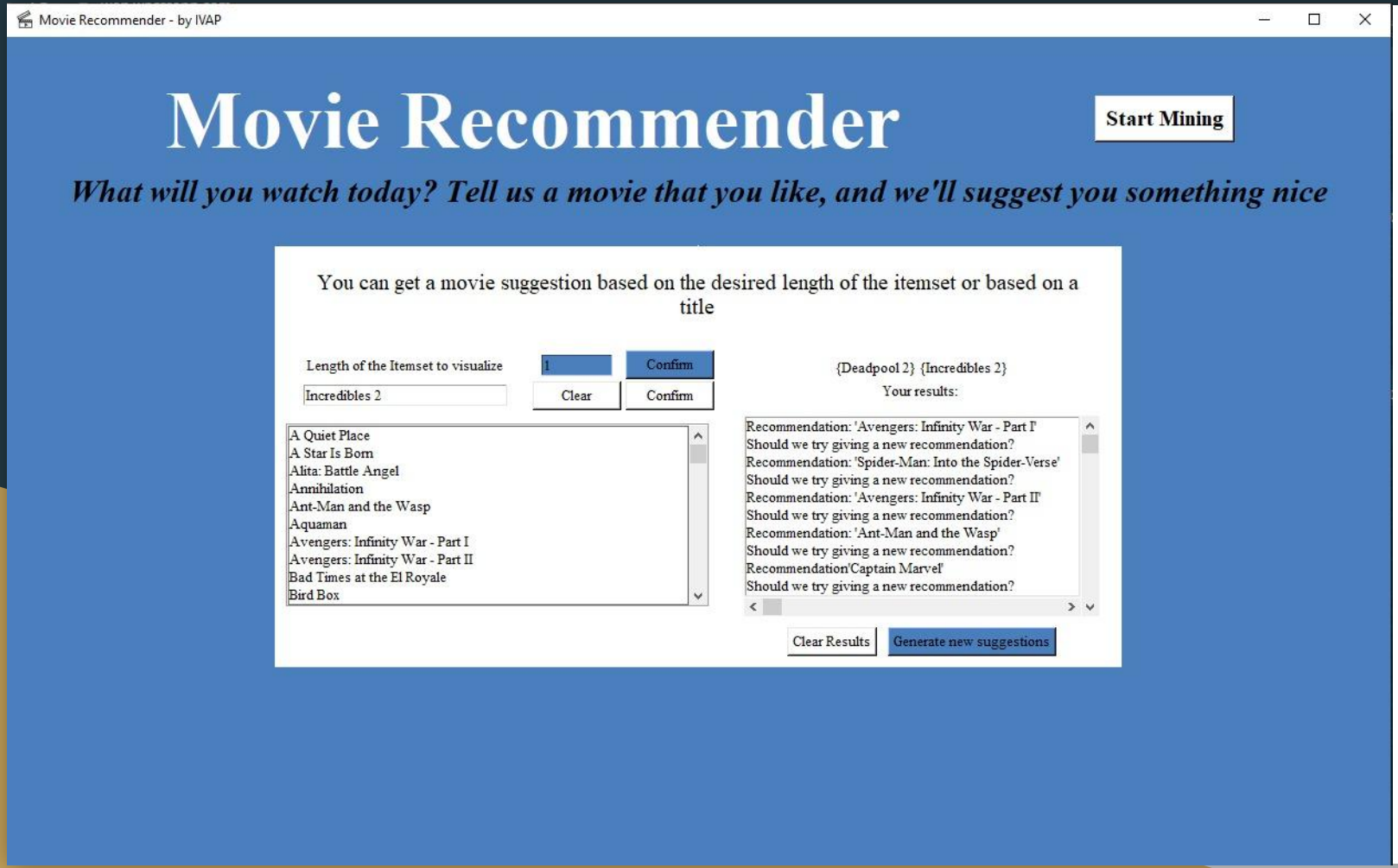

Movie Recommender - by IVAP
Movie Recommender
Start Mining
What will you watch today? Tell us a movie that you like, and we'll suggest you something nice
You can get a movie suggestion based on the desired length of the itemset or based on a title
Length of the Itemset to visualize
1
Confirm
Select a movie from the list
Clear
Confirm
Your results:
A Quiet Place
A Star Is Born
Alita: Battle Angel
Annihilation
Ant-Man and the Wasp
Aquaman
Avengers: Infinity War - Part I
Avengers: Infinity War - Part II
Bad Times at the El Royale
Bird Box
Clear Results
Generate new suggestions

Results

Terminal Output View

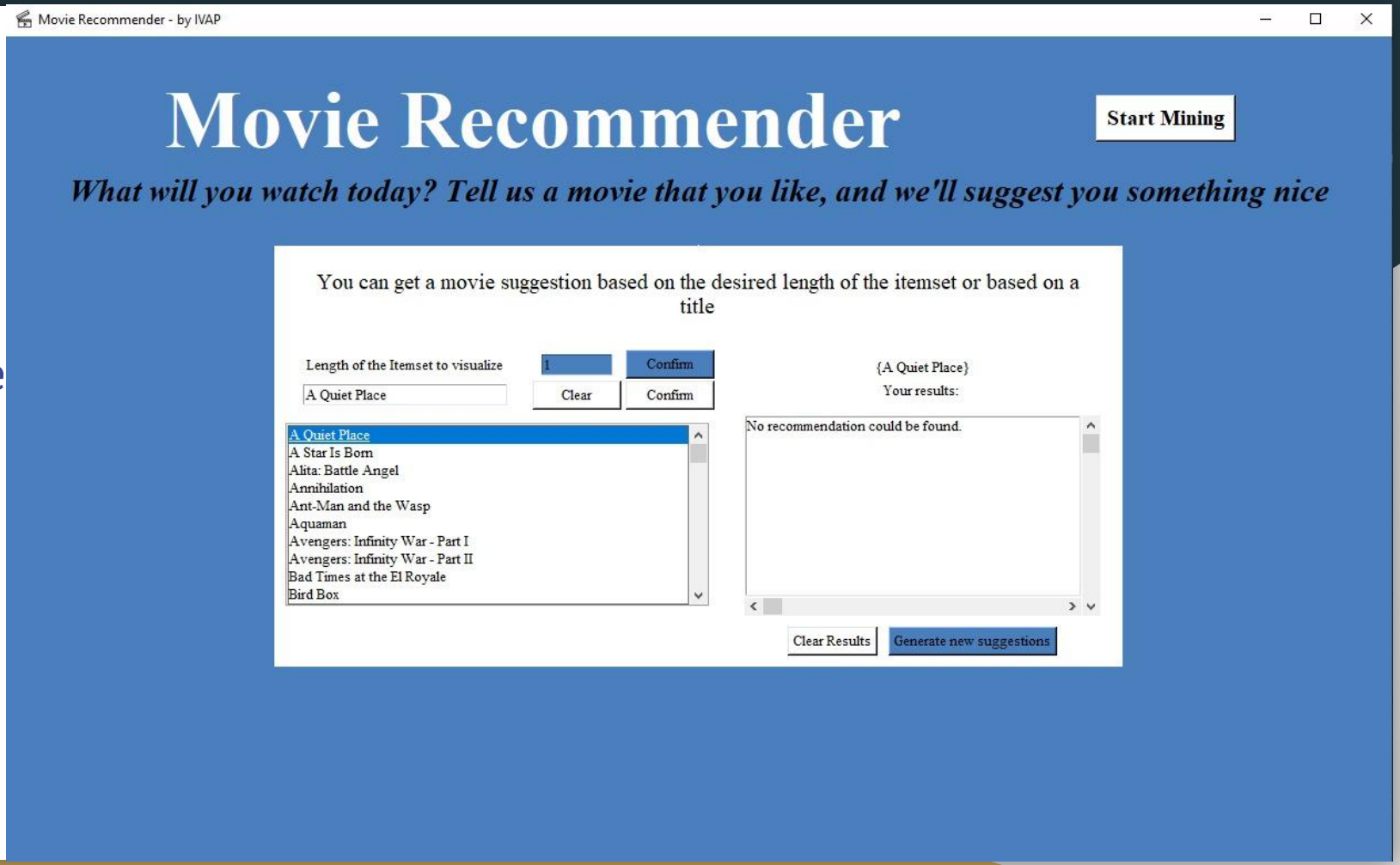
```
Welcome to movie recommendation!
Here is the list of movies from our database: 'A Quiet Place', 'A Star Is Born', 'Alita: Battle Angel', 'Annihilation', 'Ant-Ma
 Bandersnatch', 'Bohemian Rhapsody', 'Captain Marvel', 'Crazy Rich Asians', 'Deadpool 2', 'Eighth Grade', 'Fantastic Beasts and
 'Joker', 'Jurassic World: Fallen Kingdom', 'Love, Simon', 'Mission: Impossible - Fallout', "Ocean's 8", 'Once Upon a Time in H
 Far from Home', 'Spider-Man: Into the Spider-Verse', 'The Ballad of Buster Scruggs', 'The Cloverfield Paradox', 'Tomb Raider',
If you want to exit the program, input "quit".


Input some movies that you enjoy, separating them by a ";":

Incredibles 2 ; Deadpool 2
The movie recommendation result: 'Avengers: Infinity War - Part I'


Should we try giving a new recommendation? Answer with: "yes" or "no"
yes
The movie recommendation result: 'Spider-Man: Into the Spider-Verse'


Should we try giving a new recommendation? Answer with: "yes" or "no"
yes
The movie recommendation result: 'Avengers: Infinity War - Part II'


Should we try giving a new recommendation? Answer with: "yes" or "no"
yes
The movie recommendation result: 'Ant-Man and the Wasp'


Should we try giving a new recommendation? Answer with: "yes" or "no"
yes
The movie recommendation result: 'Captain Marvel'


Should we try giving a new recommendation? Answer with: "yes" or "no"
yes
The movie recommendation result: 'Spider-Man: Far from Home'


Should we try giving a new recommendation? Answer with: "yes" or "no"
yes
We are sorry, but no recommendation could be found for your input.
```

Itemset Ouput View



Two Movies Input Results

One Movie Input With Negative Result



Evaluation of performance

- for running the apriori algorithm, together with the process of saving to files: 21.252972364425 66 s
- for computing the association rules and saving them into a file: 0.3769972324371338 s

Thank you for your attention!